

CLAIMS

The invention claimed is:

- 1 Taught by prior art except 20 kHz
1. A method for stimulating a human cochlea in response to a sound, comprising:
- 2 generating an electrical sound signal in response to the sound;
- 3 generating an electrical analog carrier signal having a frequency greater than 20 kHz;
- 4 modulating the carrier signal with the sound signal to generate a modulated signal;
- 5 and
- 6 applying the modulated signal to an electrode that is coupled with the cochlea.

2. The method of claim 1, wherein modulating is by amplitude modulation.

3. The method of claim 1, wherein modulating is by frequency modulation.

4. The method of claim 1, wherein the electrical analog carrier signal has a frequency of at least 32 kHz.

5. The method of claim 4, wherein modulating is by amplitude modulation.

6. The method of claim 4, wherein modulating is by frequency modulation.

7. A cochlear implant system for a patient's cochlea comprising:

at least one electrode for coupling with the patient's cochlea;

an internal coil for implanting in the patient to drive the electrode;

a microphone for outputting electrical sound signals in response to external sounds;

an oscillator for generating an electrical analog carrier signal having a frequency greater than 20 kHz;

a modulator for modulating the carrier signal with the sound signals to generate a modulated signal; and

an external coil for magnetically coupling the modulated signal to the internal coil.

8. The system of claim 7, wherein the modulator is an amplitude modulator.

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9. The system of claim 7, wherein the modulator is a frequency modulator.

1 10. The system of claim 7, wherein the electrical analog carrier signal has a
2 frequency of at least 32 kHz.

1 11. The system of claim 10, wherein the modulator is an amplitude modulator.

1 12. The system of claim 10, wherein the modulator is a frequency modulator.

1 13. A driver for driving an at least partially implanted cochlear implant system
2 having at least one electrode coupled with the patient's cochlea and an internal coil for
3 driving the electrode, the driver comprising:

4 a microphone for receiving external sounds and outputting a corresponding electrical
5 sound signal;

6 an oscillator for generating an electrical analog carrier signal having a frequency
7 greater than 20 kHz;

8 a modulator for modulating the carrier signal with the sound signal to generate a
9 modulated signal; and

10 an external coil for coupling the modulated signal to the internal coil.

1 14. The driver of claim 13, wherein the modulator is an amplitude modulator.

1 15. The driver of claim 13, wherein the modulator is a frequency modulator.

1 16. The driver of claim 7, wherein the electrical analog carrier signal has a
2 frequency of at least 32 kHz.

1 17. The driver of claim 16, wherein the modulator is an amplitude modulator.

1 18. The driver of claim 16, wherein the modulator is a frequency modulator.